



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,995	12/05/2001	Randolph A. Leising	04645.0844	9229

7590 09/29/2003

Michael F. Scalise  
Hodgson Russ LLP  
One M&T Plaza, Suite 2000  
Buffalo, NY 14203-2391

EXAMINER

CANTELMO, GREGG

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/004,995	<b>Applicant(s)</b> LEISING ET AL.	
	<b>Examiner</b> Gregg Cantelmo	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 19-39 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-18 is/are allowed.
- 6) ☐ Claim(s) 1,2,4 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 3 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) *AC 9/20/03*
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 4.
- 4) ☒ Interview Summary (PTO-413) Paper No(s) 5.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-18, drawn to a method of making a silver vanadium oxide cathode, classified in class 423, subclass 604.
  - II. Claims 19-39, drawn to a silver vanadium cathode, classified in class 429, subclass 219.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by a materially different process (see USPAT 5,545,497 as an example of making  $\epsilon$ -phase  $\text{AgV}_2\text{O}_{11}$  from processes other than those recited in the instant claims.
3. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Mr. Michael F. Scalise on September 13, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Priority***

7. Applicant's claim to priority to U.S. provisional Application No. 60/254,918, filed December 12, 2000 is acknowledged.

#### ***Information Disclosure Statement***

8. The information disclosure statements filed December 5, 2001 and June 11, 2001 have been placed in the application file and the information referred to therein has been considered as to the merits.

9. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the

Art Unit: 1745

list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

For example, on page 2 of the application, the disclosure references various publications by the inventive entities of the instant application. These references, while apparently pertinent to the claimed invention were not disclosed in any IDS.

### ***Drawings***

10. No drawings appear to have been filed with the instant application.

### ***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 1 recites forming  $\text{AgV}_2\text{O}_{11}$ . Claim 4 teaches that the metal salt can be a number of species however metal salts of copper, manganese and magnesium oxide will not appear to produce an epsilon-phase silver vanadium oxide having the formula in claim 1 but would fabricate compounds having formulas other than this (such as those recited in independent claim 9). Thus it is unclear and unlikely that selecting the metal salts having copper, manganese or magnesium will generate the silver vanadium oxide

Art Unit: 1745

having the formula  $\text{AgV}_2\text{O}_{11}$  since copper, manganese or magnesium would respectively expect to be present in the  $\text{AgV}_2\text{O}_{11}$  mixture. Thus claim 4, in its entirety, is not within the scope of claim 1 and held to be indefinite.

***Claim Rejections - 35 USC § 102***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 2, 4, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent No. 5,955,218 (Crespi).

Crespi discloses a method of manufacturing silver vanadium oxide comprising: providing a silver vanadium oxide compound mixed with a silver metal salt and heating the mixture in air to produce  $\text{AgV}_2\text{O}_{11}$  (paragraph bridging columns 6 and 7 and col. 7, line 58 through column 8, line 16). The atmosphere includes oxidizing atmospheres such as  $\text{O}_2$  and air (col. 8, ll. 63-67 and col. 9, ll. 2-12 as applied to claim 1).

Any combination of materials, including those identified above, are used as precursors for fabricating  $\text{AgV}_2\text{O}_{11}$  and heat treated in an oxidizing atmosphere to obtain the desired phase.

Cooling of the heated material of Crespi is inherent since the heating is only for a specific period of time. After that, the temperature is inherently decreased to achieve the desired crystal phase for the silver vanadium oxide compound.

Art Unit: 1745

Crespi prefers to use and oxidizing atmosphere as discussed above and incorporated herein.

After heating in an oxidizing atmosphere as described above, and applying an inherent cooling step as reasoned above, the cooling is expected to be performed in the same oxidizing atmosphere since there is no teaching or suggestion for altering the oxidizing atmosphere after production and that a cooling step is an inherent requisite to effectively limit the heating time described in Crespi.

The silver metal salt can be silver carbonate, silver oxide, etc. (col. 7, ll. 1-4 as applied to claim 4).

The reaction mixture is most preferably heated between 460-550° C for 1 to 12 hours (col. 8, ll. 5-7 as applied to claims 7 and 8).

### ***Claim Rejections - 35 USC § 103***

16. Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Crespi.

The teachings of claim 1 have been discussed above and are incorporated herein.

The difference between claim 6 and Crespi is that Crespi does not disclose of the BET limitation.

Crespi discloses using a silver compound including silver carbonate and a vanadium compound including silver vanadium oxide to form a desired silver vanadium oxide compound (as discussed above and incorporated herein).

Art Unit: 1745

The silver vanadium oxide is an  $\epsilon$ -phase  $\text{AgV}_2\text{O}_{11}$  (see example 1).

Upon using the starting materials of silver carbonate in combination with silver vanadium oxide, and generating the  $\epsilon$ -phase  $\text{AgV}_2\text{O}_{11}$  from this combination as appreciated by Crespi, there is a reasonable expectation that the prior art will inherently or obviously have the same surface area characteristic, absent clear evidence to the contrary.

***Allowable Subject Matter***

17. Claims 9-18 are allowed.

18. The following is an examiner's statement of reasons for allowance: none of the prior art of record are considered to teach, suggest or render obvious the invention of claim 9.

In particular claim 9 recites providing  $\gamma$ -phase  $\text{Ag}_{1.2}\text{V}_3\text{O}_{8.1}$  as the silver vanadium compound which is then mixed with a metal salt, and heated to form the active material recited in claim 9.

The overwhelming majority of the prior art of record teach or suggest using a vanadium compound (not including silver) which is mixed with a silver metal salt and heating the mixture to generate a desired silver vanadium oxide compound which is then used as the cathode active material.

Crespi, used in the prior art rejections above, does teach of using a silver vanadium oxide material mixed with a silver metal salt to manufacture a desired silver vanadium oxide compound which is then used as the cathode active material. However

Art Unit: 1745

there is no teaching, suggestion or obviousness rationale in Crespi or the remaining prior art of record to modify the  $\text{AgVO}_3$  compound mixed with the silver salt to be specifically  $\gamma$ -phase  $\text{Ag}_{1.2}\text{V}_3\text{O}_{8.1}$ .

In addition the instant application teaches away from using vanadium pentoxide as the starting material and instead uses  $\gamma$ -phase  $\text{Ag}_{1.2}\text{V}_3\text{O}_{8.1}$  (page 8, lines 11-15). And the disclosure provides no teaching or suggestion of using a vanadium compound starting material other than  $\gamma$ -phase  $\text{Ag}_{1.2}\text{V}_3\text{O}_{8.1}$ . Thus there appears to be some significance in selection of this starting material in achieving the lower BET  $\epsilon$ -phase  $\text{Ag}_2\text{V}_4\text{O}_{11}$ .

Therefore it would appear that claim 9 is novel over the prior art of record for the reasons set forth above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

19. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record are considered to teach, suggest or render obvious the inventions of claims 3 or 5.

With respect to claim 3: claim 3 recites providing  $\gamma$ -phase  $\text{Ag}_{1.2}\text{V}_3\text{O}_{8.1}$  as the silver vanadium compound which is mixed with a metal salt, and heated to form the active material recited in claim 3.

Art Unit: 1745

The reasons for allowance of claim 9 above are applicable to claim 3 since the allowable subject matter of claim 3 is the same subject matter allowed in claim 9 above. The reasons for allowance of claim 9 above is incorporated herein.

With respect to claim 5: claim 5 recites that the metal salt is Ag<sub>2</sub>O and the resultant  $\epsilon$ -phase Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub> has a BET of about 0.54 m<sup>2</sup>/g.

While the use of Ag<sub>2</sub>O as a metal salt in manufacturing Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub> is known in the art, there is no apparent teaching or suggestion in the prior art of record for combining a metal salt of Ag<sub>2</sub>O with a silver vanadium compound (recited in base claim 1) wherein such combination produces  $\epsilon$ -phase Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub> has a BET of about 0.54 m<sup>2</sup>/g.

The instant application is drawn to forming  $\epsilon$ -phase Ag<sub>2</sub>V<sub>4</sub>O<sub>11</sub> having lower BET (specific surface area).

### ***Conclusion***

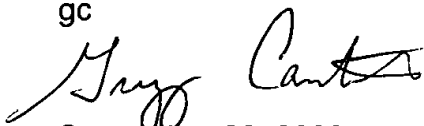
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a

Art Unit: 1745

general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gregg Cantelmo  
Patent Examiner  
Art Unit 1745

gc



September 20, 2003

# Examiner-Initiated Interview Summary

Application No.

10/004,995

Applicant(s)

LEISING ET AL.

Examiner

Gregg Cantelmo

Art Unit

1745

## All Participants:

(1) Gregg Cantelmo.

(2) Mr. Michael F. Scalise.

## Status of Application: \_\_\_\_\_

(3) \_\_\_\_\_

(4) \_\_\_\_\_

Date of Interview: 13 September 2003

Time: \_\_\_\_\_

## Type of Interview:

☒ Telephonic

☐ Video Conference

☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☐ No

If Yes, provide a brief description:

## Part I.

Rejection(s) discussed:

Claims discussed: .

1-39

Prior art documents discussed:

## Part II.

### SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

*A restriction requirement was presented as set forth in the office action of paper No. 6. Applicant's representative elected Group I, claims 1-18.*

## Part III.

- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
- ☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

\_\_\_\_\_  
(Examiner/SPE Signature)

\_\_\_\_\_  
(Applicant/Applicant's Representative Signature – if appropriate)